

# 9th Class 2020

Biology	Group-I	Paper-I
Time: 1.45 Hours	(Subjective Type)	Marks: 48

(Part-I)

**Q.2. Write short answers to any Five (5) questions: (10)**

(i) What are parasites?

**Ans** Parasites are the organisms that take food and shelter from living hosts and, in return, harm them.

(ii) Which are two basic types of cells in living organisms?

**Ans** Two basic types of cells in living organisms are:

1. Red blood cells (erythrocytes).
2. White blood cells (leucocytes).

(iii) Write two characteristics of kingdom fungi.

**Ans** Kingdom fungi:

It includes eukaryotic multicellular heterotrophs which are absorptive in their nutritional mode e.g., mushrooms.

1. Most fungi are decomposers.
2. They live on organic material, secrete digestive enzymes and absorb small organic molecules formed by the digestion and by enzymes.

(iv) Differentiate between endangered and extinct species.

**Ans** Endangered Species:

A species is called endangered when it is at risk of extinction in near future.

**Extinct Species:**

In an ecosystem, a species is called extinct when there is no doubt that the last individual of that species has died in that ecosystem.

(v) Give names of national animal and bird of Pakistan.

**Ans** Markhor is the national animal and chakor partridge is the national bird of Pakistan.



(vi) Define the basic unit of classification.

**Ans** Species is the basic unit of classification.

(vii) Write two functions of centrioles.

**Ans** Two functions of centrioles are:

1. Their function is to help in the formation of spindle fibers during cell division.
2. In some cells, centrioles are involved in the formation of cilia and flagella.

(viii) What is difference between primary and secondary growth in plants?

**Ans** **Primary Growth:**

Apical meristems are located at the apices (tips) of roots and shoot. When they divide, they cause increase in the length of plant. Such growth is called primary growth.

**Secondary Growth:**

Lateral meristems are located on the lateral sides of roots and shoot. By dividing, they are responsible for increase in growth of plant parts. This growth is called secondary growth.

**Q.3. Write short answers to any Five (5) questions: (10)**

(i) What is meant by control in experiments?

**Ans** In science when doing the experiment, it must be a controlled experiment. The scientist must contrast an "experimental group" with a "control group". The two groups are treated exactly alike except for the one variable being tested.

(ii) What is scientific law? Give its an example.

**Ans** A scientific law is a uniform or constant fact of nature. It is an irrefutable theory. Hardy-Weinberg law is its an example.

(iii) State any two differences between aerobic and anaerobic respiration.

**Ans** **First Difference:**

Aerobic respiration has presence of oxygen while anaerobic respiration has no presence of oxygen.



## **Second Difference:**

Final products of aerobic respiration are  $\text{CO}_2$ ,  $\text{H}_2\text{O}$ . On the other hand, final products of anaerobic respiration are lactic acid or Ethanol +  $\text{CO}_2$ .

- (iv) **Quantitative observations are better in biological method. How?**

**Ans** Quantitative observations are considered more accurate than qualitative ones because the former are invariable and measurable and can be recorded in terms of numbers.

### **Example:**

The freezing point of water is  $0^\circ\text{C}$  and boiling point is  $100^\circ\text{C}$ .

- (v) **Write the causes of necrosis.**

**Ans** Necrosis is the accidental death of cells and living tissues. There are many causes of necrosis including injury, infection, cancer, etc. Necrosis may occur when a cell is given hypoxic (with less oxygen) environments.

- (vi) **How cytokinesis occurs in animal cells?**

**Ans** Cytokinesis (the pinching of the cell membrane in animal cells or the formation of the cell wall in plant cells) occurs and the creation of two haploid daughter cells is completed.

- (vii) **Differentiate between oxidation and reduction.**

**Ans** The loss of electrons is called oxidation while the gain of electrons is called reduction.

- (viii) **Define cellular respiration.**

**Ans** In cellular respiration, food is oxidized to  $\text{CO}_2$  while  $\text{O}_2$  is reduced into  $\text{H}_2\text{O}$ . The cellular energy-yielding process is called cellular respiration.

## **Q.4. Write short answers to any Five (5) questions: (10)**

- (i) **What is meant by metabolism? Who first of all gave the concept of metabolism?**

**Ans** Metabolism is the set of biochemical reactions that occur in living organisms in order to maintain life. The term



metabolism is derived from a Greek word meaning "change". The concept of metabolism was first of all given by Ibn-e-Nafees, who stated that "the body and its parts are always undergoing change".

(ii) Define co-factor.

**Ans** Non-protein molecules or ions are called co-factors.

(iii) Define optimum temperature and write the optimum temperature in humans for enzymes.

**Ans** Every enzyme works at its maximum rate at a specific temperature called as the optimum temperature for that enzyme.

(iv) What are macronutrients? Give an example.

**Ans** The nutrients which are required in large quantities are called macronutrients e.g., carbon.

(v) What are dietary fibres? Write its any two functions.

**Ans** Dietary fibre (also known as "roughage") is the part of human food that is indigestible.

**Functions:**

1. Fibre prevents and relieves constipation by stimulating the contraction of intestinal muscles.
2. Avoiding constipation reduces the risk of many other diseases.

(vi) Human heart works as double pump. Write, how it is?

**Ans** The human heart works as a double pump. It receives deoxygenated (oxygen poor) blood from different parts of the body and pumps it to the lungs. At the same time, it receives oxygenated (oxygen rich) blood from lungs and sends it to all parts of the body.

(vii) Define transpiration and write the names of any two factors of transpiration.

**Ans** **Transpiration:**

The loss of water from plant surface by evaporation.

**Factors of Transpiration:**

1. Temperature
2. Air humidity



(viii) Write the name of mosquito which transmits dengue fever and any two symptoms of fever.

**Ans** The name of mosquito which transmits dengue fever is Aedes.

**Symptoms:**

1. In dengue fever, there is a sharp decrease in the number of platelets in blood.
2. Patients bleed from the nose, gums and under the skin.

**(Part-II)**

**Note:** Attempt any TWO (2) questions.

**Q.5.(a) Describe unicellular organization and multicellular organization with examples. (4)**

**Ans** Cells organize in three ways to make the bodies of organisms. Cells make unicellular, colonials and multicellular organizations and the organisms formed through these organizations are unicellular organisms, colonial organisms and multicellular organisms.

**Unicellular organization:**

In unicellular organisms, only one cell makes the life of an organism. All the life activities are carried out by the only cell. Amoeba, Paramecium and Euglena are common examples.

**Multicellular organization:**

In multicellular organization, cells are organized in the form of tissues, organs and organ systems. Frog and mustard are the familiar examples of multicellular organization.

**(b) Write four differences between prokaryotic and eukaryotic cells with the help of a prokaryotic cell diagram. (5)**

**Ans** For Answer see Paper 2017 (Group-I), Q.5.(b).



**Q.6.(a) Describe significance of mitosis.**

**(4)**

**Ans** Development and growth:

The number of cells within an organism increase by mitosis. This is the basis of the development of a multicellular body from a single cell *i.e.*, zygote and also the basis of the growth of multicellular body.

**Cell replacement:**

In some parts of body, *e.g.*, skin and digestive tract, cells are constantly sloughed off and replaced by new ones. New cells are formed by mitosis and so are exact copies of the cells being replaced. Similarly, red blood cells have short life-span (about 4 months) and new red blood cells are formed by mitosis.

**Regeneration:**

Some organisms can regenerate parts of their bodies. The production of new cells is achieved by mitosis. For example, sea star regenerates its lost arm through mitosis.

**Asexual reproduction:**

Some organisms produce genetically similar offspring through asexual reproduction. Mitosis is a mean of asexual reproduction. For example, hydra reproduces asexually by budding. The cells at the surface of hydra undergo mitosis and form a mass called bud. Mitosis continues in the cells of bud and it grows into a new individual. The same division happens during asexual reproduction (vegetative propagation) in plants.

**(b) Write a detailed note on mechanism of respiration. (5)**

**Ans** For Answer see Paper 2017 (Group-I), Q.6.(b).

**Q.7.(a) Write effects of malnutrition.**

**(4)**

**Ans** Effects of Malnutrition:

An extended period of malnutrition can lead to problems like starvation, heart diseases, constipation and obesity.



**Starvation:**

Starvation is a severe reduction in nutrient and energy intake and is the most horrible effect of malnutrition. In humans, prolonged starvation causes permanent organ damage and eventually results in death.

**Heart diseases:**

Heart diseases are also increasing on the global level. One of the causes of heart diseases is malnutrition. People who take unbalanced diet (high in fats) are more exposed to heart problems.

**Constipation:**

Malnutrition often leads to situations where people cannot schedule their meals. This irregularity results in many health problems including constipation.

**Obesity:**

Obesity means becoming over-weight and it may also be due to malnutrition. People who take food that contains energy more than their requirement and do very little physical work can become obese. Obesity is known as the mother-disease and may lead to heart problems; hypertension, diabetes, etc.

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**(b) Write a note on myocardial infarction. (5)**

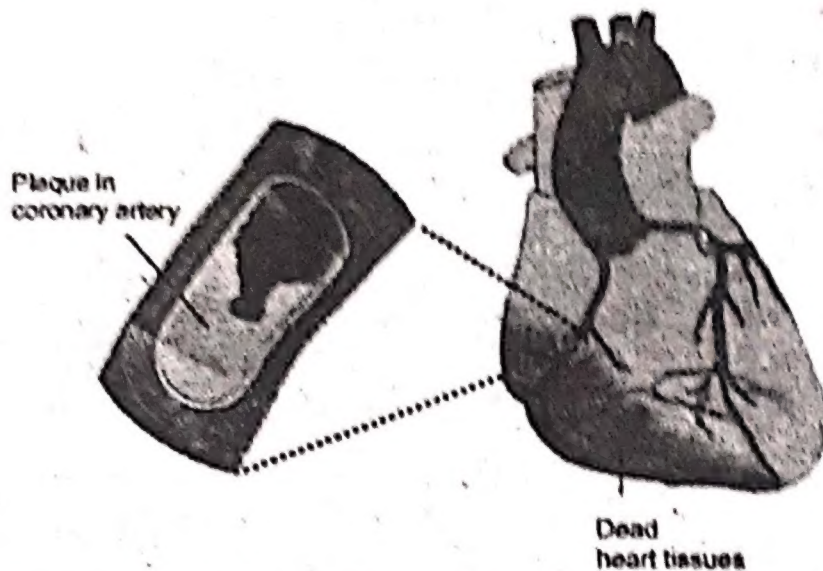
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**Ans** **Myocardial Infarction:**

The term myocardial infarction is derived from myocardium (the heart muscle) and infarction (tissue death). It is more commonly known as a heart attack. It occurs when blood supply to a part of heart is interrupted and leads the death of heart muscles. Heart attack may be caused by blood clot in coronary arteries. It is a medical emergency, and the leading cause of death for both men and women all over the world. Severe chest pain is the most common symptom of myocardial infarction and may be in the form of sensation of tightness, pressure, or squeezing. Pain radiates most often to left arm, but may also radiate to lower jaw, neck, right arm and back. Loss



of consciousness and even sudden death can occur in myocardial infarction.



**Fig. Atherosclerosis and resulting Myocardial Infarction.**

Immediate treatment for suspected acute myocardial infarction includes oxygen supply, aspirin, and sublingual tablet of glyceryl trinitrate. Most cases of myocardial infarction are treated with angioplasty (mechanical widening of a narrowed or totally obstructed blood vessel) or bypass surgery (surgery in which arteries or veins from elsewhere in the patient's body are grafted to the coronary arteries to improve blood supply to heart muscles).